Structural and cyclical determinants of access to finance: Evidence from Egypt

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Why do we care?

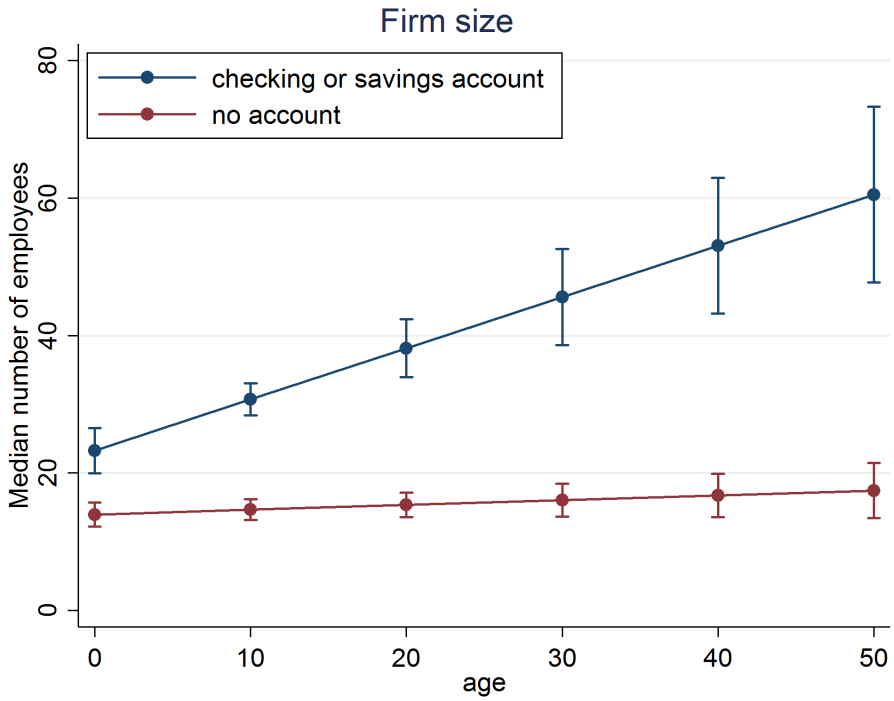


Figure: Financially excluded firms remain small

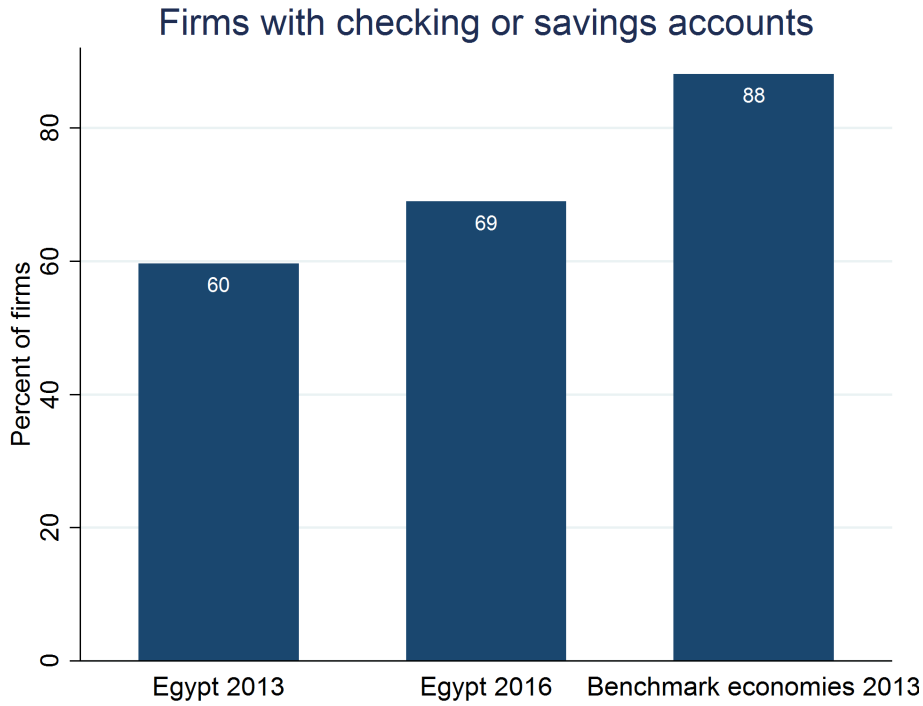


Figure: Egypt has many financially excluded firms

Private sector credit in Egypt: from bad to worse

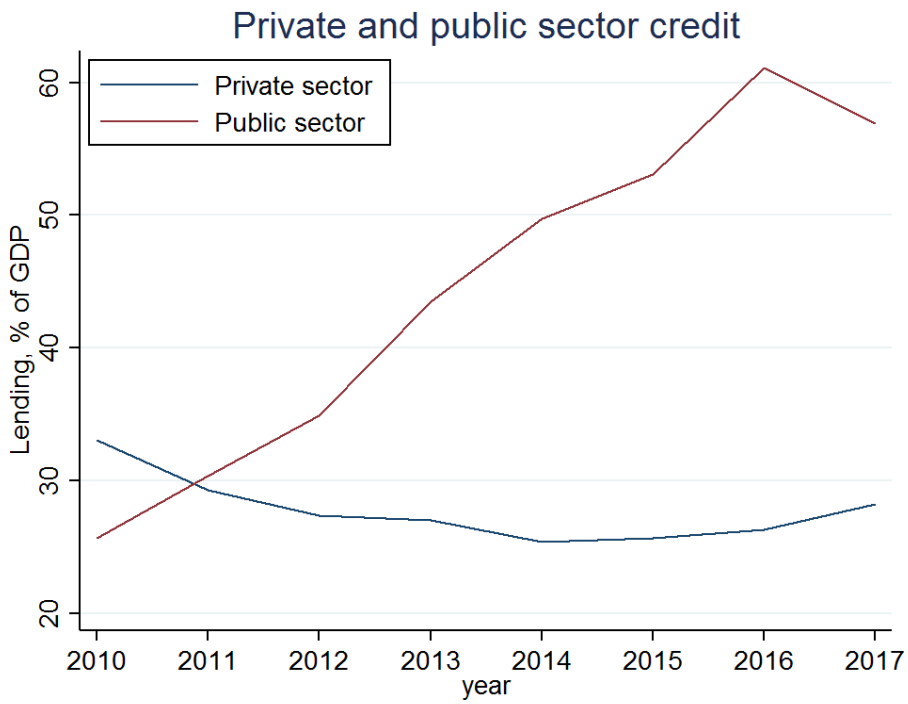


Figure: The government crowding out the private sector

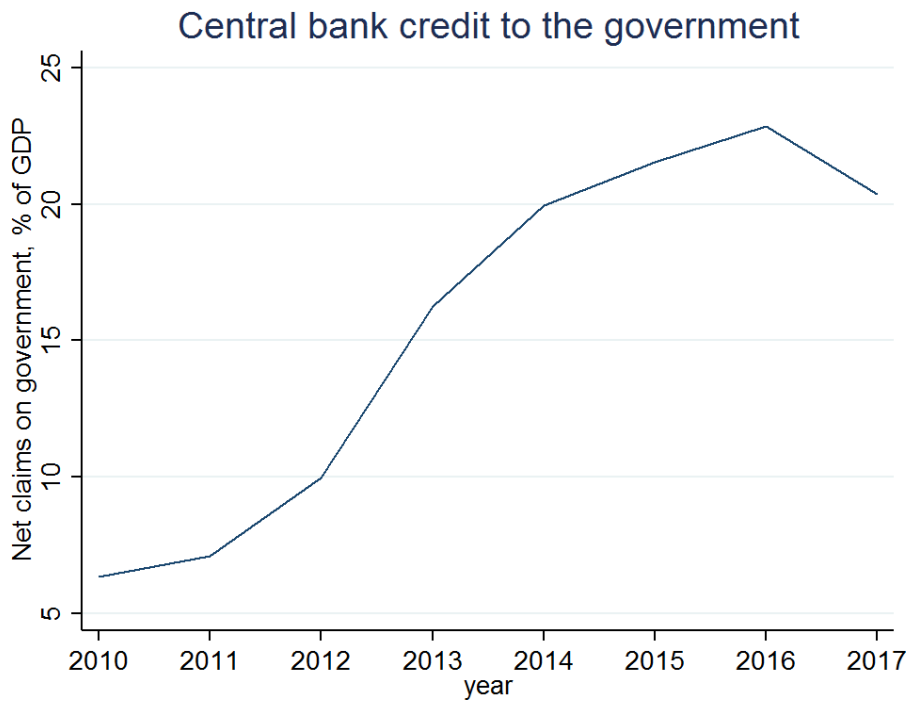


Figure: Public debt was partly monetized

Why do firms participate in the financial system?

Egypt is know as a cash economy (94% of transactions in cash, according to Mastercard) and for its large informal sector

Registered but unbanked forms operate on a semi-formal basis. This way of operating

- may help firms to save on taxes
- but aggravates information asymmetries

Operating on a informal (or semi-formal) basis can be optimal if

- intermediation capacity of the banking system is low (Straub, 2005)
- institutional quality is poor (Johnson et al., 2002)
- opportunity costs in the form of lost growth are low, for instance because entrepreneurs are less skilled (Gennaioli et al., 2013)

Results

Structural level

- Firms run by more experienced and more educated CEOs are more likely to become financially included over the sample period
- We do not find a role for intermediation capacity and institutional quality
- Entrepreneurial human capital appears to matter because of opportunity costs rather than financial literacy

Cyclical level

- CEO education and experience is positively associated with access to credit
- Crowding out reflected in greater prevalence of credit constraints

This presentation

Financial inclusion

To examine financial inclusion we estimate the following regression:

$$\Delta account_i = \beta_1 * crowdingout_i + \beta_2 * \Delta CEOeducation_i + \beta_3 * \Delta CEOexperience_i + \gamma * X_i + U_i$$

Where

- $account_i$ equals 1 if the firm has a checking or savings account
- The Δ-prefix indicates the difference between the value in 2016 and 2013 (the two waves of the survey for Egypt)
- $crowdingout_i$ measures local supply of credit
- $CEOeducation_i$ is likely to change with CEO, thus all specifications also control for CEO experience.

Credit constraints

To examine credit constraints we estimate the following regression:

$$\Delta constrained_i = \beta_1 * crowdingout_i + \beta_2 * \Delta CEOeducation_i + \beta_3 * \Delta CEOexperience_i + \gamma * X_i + U_i$$

Only firms that have demand for credit can be credit constrained.

In a second step we use liquidity shocks to instrument credit demand. Candidate instruments:

- Loss due to spoilage
- Loss due to informal gift request
- Loss due to power outage

Last step: Generalize to SN using 2013 cross-section of MENA ES

Outline

Firm-level data

Firm-level data come from the MENA Enterprise Survey

- The MENA ES is a representative firm-level survey financed jointly by EIB, EBRD, and the World Bank and conducted in 2013
- The finance module of the survey asks firms whether they
  - have a checking or savings account
  - are credit constrained (rejected or discouraged)
- The survey also includes information on
  - firm characteristics
  - educational attainment and experience of the manager
  - business environment and institutional quality
- In 2016, a follow-up survey was done in Egypt
  - longitudinal data (panel firms)

Complementary data sources

The crowding-out index draws on information

- on the location of bank branches
- on bank security holdings and loans from Orbis BankFocus

and is computed as follows

$$crowdingout_j = \sum_{t=2013}^{2015} \frac{s_{j,t} - l_{j,t}}{\sum_j a_{j,t}} - \sum_{t=2010}^{2012} \frac{s_{j,t} - l_{j,t}}{\sum_j a_{j,t}}$$

where $s_{j,t}$ and $l_{j,t}$ denote security holdings and loans of bank j and $\sum_j a_{j,t}$ refers to total assets in the banking system.

Bank balance sheets

Focus on the following banks:

Public

- National Bank of Egypt
- Banque Misr
- Banque du Caire

Private

- CIB

Foreign

- QNB
- HSBC

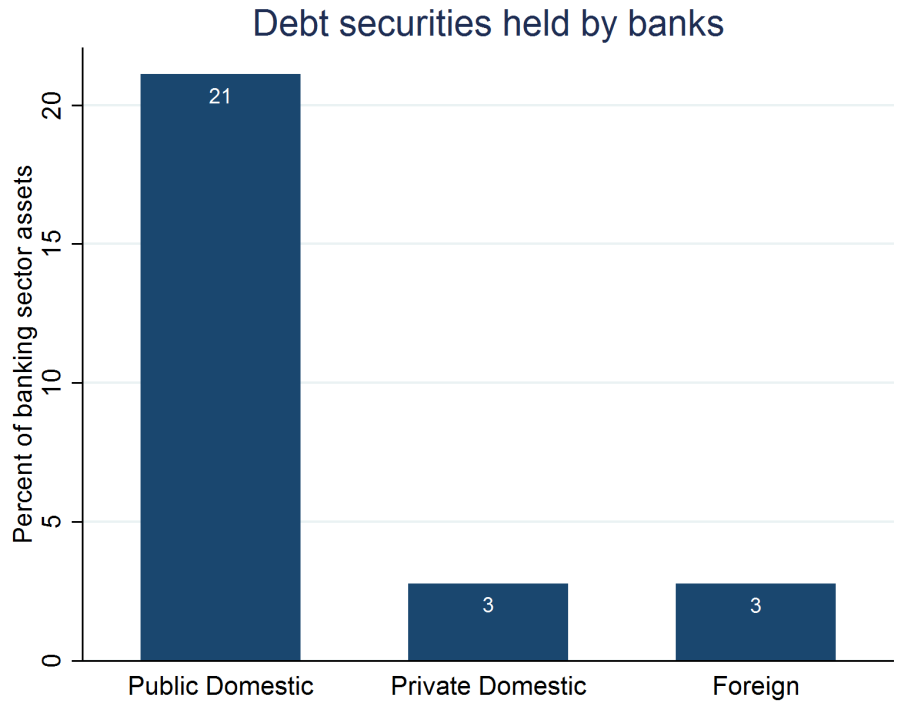


Figure: Government debt mainly held by public banks

Outline

Financial inclusion: baseline results

	(1) Δ Account	(2) Δ Account	(3) Δ Account	(4) Δ Account
Δ CEO university education	0.127**			0.142**
	(0.06)			(0.06)
Δ CEO experience		0.037*		0.047**
		(0.02)		(0.02)
Δ CEO female			-0.034	-0.024
			(0.08)	(0.09)
Initially informal	-0.153**	-0.170**	-0.157**	-0.168**
	(0.07)	(0.07)	(0.07)	(0.08)
Young firm	0.182***	0.164***	0.167***	0.175***
	(0.06)	(0.06)	(0.06)	(0.06)
Small firm	0.124***	0.136***	0.129***	0.130***
	(0.05)	(0.05)	(0.05)	(0.05)
N	612	598	614	597
R2	0.06	0.06	0.05	0.07

Financial inclusion and financial system characteristics

	(1) Δ Account	(2) Δ Account	(3) Δ Account	(4) Δ Account
Local financial inclusion	-0.087			
	(0.13)			
Local financial intermediation		-0.064		
		(0.15)		
Crowding out index			-0.030	
			(0.03)	
Liquidity shock				0.052
				(0.05)
Δ CEO university education	0.124**	0.129**	0.104*	0.143**
	(0.06)	(0.06)	(0.06)	(0.06)
Δ CEO experience	0.050**	0.052**	0.042*	0.045**
	(0.02)	(0.02)	(0.02)	(0.02)
Δ CEO female	-0.037	-0.033	-0.035	-0.024
	(0.09)	(0.09)	(0.09)	(0.09)
Initially informal	-0.121	-0.108	-0.103	-0.168**
	(0.07)	(0.10)	(0.09)	(0.09)
N	545	545	516	597
R2	0.08	0.10	0.09	0.08

Financial inclusion and institutional quality

	(1) Δ Account	(2) Δ Account	(3) Δ Account	(4) Δ Account
Δ political instability	0.064			
	(0.04)			
Δ property rights enforced		0.005		
		(0.03)		
Δ courts impartial			-0.030	
			(0.03)	
Δ courts quick				-0.055
				(0.04)
Δ CEO university education	0.135**	0.142**	0.140**	0.142**
	(0.06)	(0.06)	(0.06)	(0.06)
Δ CEO experience	0.045**	0.047**	0.048**	0.047**
	(0.02)	(0.02)	(0.02)	(0.02)
Δ CEO female	-0.019	-0.024	-0.022	-0.015
	(0.08)	(0.09)	(0.09)	(0.09)
Initially informal	-0.174**	-0.168**	-0.174**	-0.168**
	(0.07)	(0.08)	(0.08)	(0.08)
Sample size	590	597	597	597
R2	0.08	0.07	0.08	0.08

Credit constraints

	(1) Δ constrained	(2) Δ discouraged	(3) Δ rejected	(4) Δ constrained
Crowding out index	0.065**	0.062**	0.004	0.052*
	(0.03)	(0.03)	(0.01)	(0.03)
Δ CEO university education	-0.115*	-0.154**	0.038**	-0.097
	(0.06)	(0.06)	(0.02)	(0.06)
Δ CEO experience	-0.014	-0.035	0.021**	-0.011
	(0.02)	(0.02)	(0.01)	(0.02)
Δ CEO female	-0.095	-0.102	0.007	-0.098
	(0.09)	(0.09)	(0.01)	(0.09)
Δ ownership	0.187**	0.190***	-0.002	0.203***
	(0.07)	(0.07)	(0.01)	(0.08)
Δ exporter	0.169***	0.147**	0.022	0.196***
	(0.06)	(0.06)	(0.02)	(0.06)
Δ audit	-0.068	-0.059	-0.009	-0.051
	(0.04)	(0.04)	(0.01)	(0.05)
Initially informal	0.223**	0.186*	0.037	0.214*
	(0.11)	(0.11)	(0.03)	(0.11)
Δ account				-0.104**
				(0.05)
N	521	521	521	516
R2	0.10	0.10	0.06	0.11

Instrumenting credit demand

	(1) Δ need	(2) Δ constrained	(3) Δ discouraged	(4) Δ rejected
Liquidity shock	0.213***			
	(0.06)			
Crowding out index	0.022	0.043***	0.040**	0.003
	(0.03)	(0.02)	(0.02)	(0.01)
Δ CEO university education	-0.083	-0.052**	-0.092***	0.040**
	(0.06)	(0.03)	(0.03)	(0.02)
Δ CEO experience	-0.002	-0.018	-0.038***	0.020**
	(0.02)	(0.01)	(0.01)	(0.01)
Δ CEO female	-0.154	0.023	0.013	0.010
	(0.09)	(0.07)	(0.07)	(0.02)
Δ ownership	0.222**	-0.003	0.003	-0.006
	(0.09)	(0.06)	(0.06)	(0.02)
Δ exporter	0.232***	-0.006	-0.025	0.018
	(0.07)	(0.05)	(0.05)	(0.02)
Δ audit	-0.067	-0.023	-0.015	-0.008
	(0.05)	(0.02)	(0.03)	(0.01)
Initially informal	0.225**	0.056	0.023	0.034
	(0.10)	(0.07)	(0.07)	(0.03)
Δ need		0.742***	0.726***	0.016
		(0.15)	(0.16)	(0.08)
N	521	521	521	521
R2		0.74	0.71	0.07

Financial literacy and firm quality

	(1) Δ Procedures	(2) Δ Website	(3) Δ Innovator	(4) Δ Expansion
Δ CEO university education	0.004	0.086**	0.076*	0.153**
	(0.04)	(0.04)	(0.04)	(0.07)
Δ CEO experience	-0.012	0.007	0.014	0.025
	(0.02)	(0.02)	(0.02)	(0.03)
Δ CEO female	0.004	0.098	0.142	-0.067
	(0.06)	(0.07)	(0.09)	(0.17)
Initially informal	0.160***	-0.055	0.021	0.066
	(0.06)	(0.07)	(0.07)	(0.12)
Young firm	-0.013	0.176***	0.026	0.116
	(0.04)	(0.06)	(0.06)	(0.08)
Small firm	0.045	0.029	0.057	-0.095
	(0.03)	(0.05)	(0.04)	(0.07)
N	603	601	603	291
R2	0.04	0.05	0.05	0.10

Regional results: financial inclusion

	(1) Δ Account	(2) Δ Account	(3) Δ Account	(4) Δ Account
CEO university education	0.063***			0.063***
	(0.01)			(0.01)
CEO experience		0.000		0.005
		(0.01)		(0.01)
CEO female			0.010	0.001
			(0.02)	(0.02)
Initially informal	-0.094***	-0.090***	-0.106***	-0.079***
	(0.03)	(0.03)	(0.03)	(0.03)
N	2285	2235	2285	2235
R2	0.12	0.11	0.11	0.12

Regional results: credit constraints

	(1) Need	(2) Constrained	(3) Discouraged	(4) Rejected
CEO university education	-0.043	-0.126***	-0.123***	-0.004
	(0.06)	(0.03)	(0.04)	(0.01)
CEO experience	-0.039	-0.051***	-0.053***	0.002
	(0.03)	(0.02)	(0.02)	(0.01)
CEO female	0.204	-0.007	-0.005	-0.001
	(0.14)	(0.07)	(0.08)	(0.03)
Crowding out index	0.095*	-0.020	-0.008	-0.011
	(0.05)	(0.04)	(0.04)	(0.02)
Foreign ownership	-0.384***	-0.014	-0.010	-0.004
	(0.11)	(0.09)	(0.09)	(0.04)
Exporter	-0.038	-0.011	-0.025	0.014
	(0.07)	(0.04)	(0.04)	(0.01)
Audit	0.139**	-0.139***	-0.144***	0.005
	(0.07)	(0.04)	(0.05)	(0.02)
Initially informal	-0.028	0.031	-0.017	0.048**
	(0.10)	(0.06)	(0.06)	(0.02)
N	2167	2167	2167	2167

Outline

Conclusion

Structural level

- Firms run by more experienced and more educated CEOs are more likely to become financially included over the sample period
- We do not find a role for intermediation capacity and institutional quality
- Entrepreneurial human capital appears to matter because of opportunity costs rather than financial literacy
- Implies that business environment reform can also be conducive to financial inclusion

Cyclical level

- CEO education and experience is positively associated with access to credit
- Crowding out reflected in greater prevalence of credit constraints

Outline

The costs and benefits of operating formally

When deciding whether to register, firms trade-off the costs and benefits of operating formally, where costs are given by

- taxes
- regulations

and benefits come from access to the

- judiciary
- financial system

We do not have data on unregistered firms but think of unbanked firms as operating on a semi-formal basis.

Implications

Operating on a cash-only basis

- helps firms to save on taxes
- aggravates information asymmetries

The SME lending programme proposed by Munro (2013) demands that small firms without financial statements run their activities through a checking account for one year to establish a reliable sales figure.

Therefore, firms are more likely to operate on a semi-formal basis if

- intermediation capacity of the banking system is low (Straub, 2005)
- opportunity costs in the form of lost growth is low

Opportunity costs

Entrepreurial human capital and financial literacy

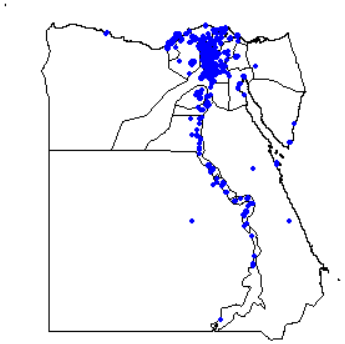
- La Porta and Shleifer (2014) find that informal firms tend to be small and unproductive. They argue that the low levels of productivity reflect lack of skills on the side of the entrepreneurs.
- Gennaioli et al (2013) document a strong association between entrepreneurial human capital and firm productivity.

Institutions

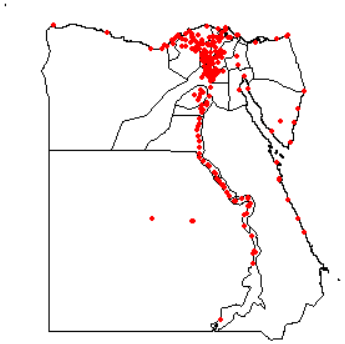
- Acemoglu et al (2001) argue that secure property rights are a determinant of economic growth. If entrepreneurs cannot reap the reward for their efforts they will not invest in the first place.
- Using data from five Eastern European countries Johnson et al (2002) find that the perceived strength of property rights affects the willingness of entrepreneurs to reinvest their profits.

Spatial distribution of firms and bank branches

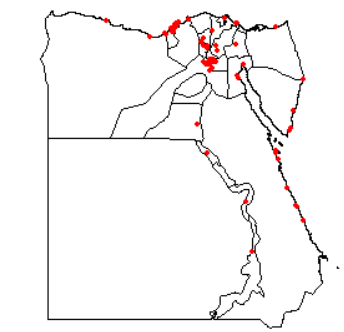
(a) Sample firms



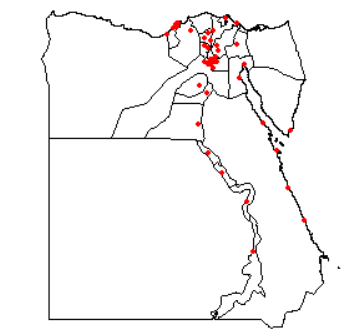
(b) Public banks



(c) Private banks



(d) Foreign banks



Comments on:

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Discussant: Cristian Rojas

Financial Market Commission

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Contents

- This paper contributes to the literature with new results about the relationship between firms and credit markets, in terms of institutional variables.
- It employs panel data models studying firms' financing access.
- The main results are:
  1. Firms run by CEOs with a higher level of education and experience are more likely to be banked and more likely to have access to credit.
  2. Firms that in the past where informal are less likely to be banked when they become formal.
  3. Firms more exposed to a crowding-out effect (surrounded by banks branches that invest more in government debt) will be more credit constrained.

Areas for improvement

- **First**: Conceptual framework.
- **Second**: Relationship between the variables.
- **Third**: Review the comparison with other countries.

Areas for improvement

1) Conceptual framework

- In general, the paper discusses “institutional determinants” of access to credit.
- But It is not clear enough the conceptual framework of being constrained and having a bank account.
- Egypt is a particular country: is an emerging market but with a lot of informality ¿To which type of countries we could expect to interpolate the results?

Areas for improvement

2) Relationship between the variables

- There would be interesting to study the interaction of some of the variables.
- For example, established if having a CEO with a high level of education can overcome the credit restrain in firms exposed to a crowding-out effects.
- What role plays the size of the firms? Is it possible to split SMEs from big companies?
    - Studies like Distinguin et al (2016) find that for SME the competition with informal are relevant in terms of credit restraint.

Areas for improvement

3) Review the comparison with other countries

- The comparison with other countries is not fully equivalent. Is this section a robustness section?

Final remarks

- It is an interesting paper that describes how institutional variables determine the probability of having a banking account and be credit restraint.
- Very critical topic for small firms and firms in Emerging Markets.
- Microdata analysis based on panel data models is a plus.
- A further analysis of the credit demand could be more studied.

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